

INTELLIGENT FOOD ORDERING MANAGEMENT SYSTEM



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INTELLIGENT FOOD ORDERING MANAGEMENT SYSTEM

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This report is submitted in partial fulfillment of the requirements for the Bachelor of
Computer Science (Artificial Intelligence)


UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
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2017

DECLARATION

I hereby declare that this project report entitled
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is written by me and is my own effort and that no part has been plagiarized without
citations.

STUDENT :  DATE: 18. 5. 2017
(TAN YAN LING)

I hereby declare that I have read this project report and found this project report is
sufficient in term of the scope and quality for the award of Bachelor of Computer
Science (Artificial Intelligence) With Honours.

SUPERVISOR:  DATE: 18. 5. 2017
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DEDICATION

I dedicate my final year project to my family and friends who supported and believed in me from the beginning of the project until the end. Furthermore, I wish to express my sincere appreciation to my supervisor, Dr Yogan Jaya Kumar for his keen and endless guidance, encouragement, and critics till the success and completion of this project. Special thanks to my family members who have mentally and physically gave me a support while doing this project. They have been encouraging by giving constructive ideas for this project. Other than that, I would like to express here, my sincere appreciation and thanks to all my fellow friends that directly and indirectly helped me throughout this project.



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ABSTRACT

Intelligent food ordering management system is developed to manage the food ordering process and generates useful sales analysis report for decision making on food quantity preparation. Normally, the customers need to spend an average of one hour for a day going to the restaurant, ordering the meals and pay for it. Some advance restaurants have provided the customer to order a meal through a call. But, the customers do not always get what they want because the selected item is sold out or because the item is not provided by the restaurant. This project is aimed to develop an intelligent food ordering management system for food industry benefit to allow the restaurants manage the online food menu and orders by customer. Meanwhile, the customer can use the system by browsing the websites to place orders by just a few clicks quickly and easily. Besides that, the system has the special features with embedded artificial intelligent techniques. Based on the food sales data, the system will predict the food preparing quantity to recommend the restaurant the quantity they have to prepare for that particular food by using K-means clustering method to get a more accurate prediction quantity rather than using the average food sales quantity. So, the issue of food shortage because of less food quantity preparation and the issue of food waste on a restaurant due to the over food quantity preparation can be solved through this system. This intelligent system also will give some advices to admin based on results of the prediction. The methodology implemented in this system is waterfall model as it is suitable to ensure that the implemented technique fulfills the requirement of the system.

ABSTRAK

Intelligent Food Ordering Management System, dibangunkan untuk menguruskan proses pesanan makanan dan menjana laporan analisis jualan untuk proses membuat keputusan dalam penyediaan kuantiti makanan. Para pelanggan kini menghabiskan purata satu jam setiap hari pergi ke restoran, membuat pesanan makanan dan membayar. Beberapa restoran sebelum ini telah menyediakan perkhidmatan pelanggan untuk memesan makanan melalui panggilan. Tetapi, pelanggan tidak sentiasa mendapat pilihan yang mereka mahu kerana restoran kehabisan barangan tertentu atau kerana tidak ada peruntukan pesanan makanan. Projek ini bertujuan untuk membangunkan sistem pesanan dalam talian pintar untuk digunakan dalam industri perkhidmatan makanan yang akan membolehkan restoran-restoran untuk menguruskan menu dalam talian yang pelanggan boleh menyemak dan gunakan untuk membuat pesanan dengan hanya beberapa klik dengan cepat dan mudah. Selain itu, sistem ini mempunyai ciri-ciri istimewa dengan teknik kepintaran buatan. Berdasarkan data jualan makanan, sistem akan meramalkan makanan menyediakan kuantiti untuk menyarankan restoran untuk mengetahui kuantiti yang mereka perlu bersedia untuk makanan yang tertentu dengan menggunakan K-means clustering untuk mendapatkan kuantiti ramalan yang lebih tepat daripada menggunakan jualan makanan purata kuantiti. Oleh itu, isu kekurangan makanan kerana kurang persediaan kuantiti makanan dan isu sisa makanan di restoran yang kena dibayar kepada penyediaan kuantiti makanan lebih boleh diselesaikan melalui sistem ini. Sistem pintar juga akan memberikan beberapa cara untuk admin berdasarkan hasil daripada ramalan. Metodologi dilaksanakan dalam sistem ini adalah Waterfall Model memandangkan ia sesuai untuk memastikan bahawa teknik pelaksanaan memenuhi keperluan sistem.

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CHAPTER I

INTRODUCTION

1.1 Project Background

Nowadays, there is hassle for the customer as they spend a lot of time going to the restaurant. So, there are many restaurants focus on quick preparation and speedy delivery of food orders for their customers. All of these food delivery orders were placed through call before presence of the online food ordering platform. There are many disadvantages of placing the order through calls such as customer do not have a copy of the menu, lack of visual confirmation that the order was placed correctly and the restaurant need to have an employee answering the call and taking orders.

This project proposed is to build an intelligent food ordering management system for a restaurant. Intelligent food ordering management system is an online based ordering management platform. It is aim to propose a user-friendly platform to manage food ordering and solve the issue faced by restaurants. Food order management efficiency and food preparation are the main issue of the traditional food ordering business. The main advantage of this system is that it is simplifies the ordering process and it can predict the quantity of food preparation for the restaurants.

This system allows the restaurants to manage an online menu which customer

can browse and use to place orders with just a few clicks quickly and easily. The food will be delivered to the customer and the payment method will be upon delivery. There will be a system administrator who will have the right to view their customer information and manage their orders. Besides that, admin can manage the daily food menu by update the available food to the menu. The customer will be in a position to register and manage their account. They also can view the menu and place an order. There will be a confirmation receipt for every order made by the customer which can be printed.

Other than that, the system will base on the food sales data to predict the quantity of food preparation by applying clustering techniques. For example, the system will predict quantity to recommend the restaurants that the quantity they can prepare for that particular food. So, the issue of restaurants run out of certain food because of less food quantity preparation and the issue of food waste on a restaurant due to the over food quantity preparation can be solved through this system. This intelligent system also will give some advices to admin based on the result of the prediction. For example, if there is a bad sale for the food, the system will recommend the restaurant to stop selling the food. For those new foods added to the menu, the system will show the message which is the food is under review.



1.2 Problem Statements

The intelligent food ordering management system is designed to solve the problems such as food ordering issue, restaurant management issue, food shortage issue, food waste issue and poor prediction on food preparation by the human. The food ordering issue is the time consuming for the customer to queue up and wait for their orders. There is also hassle for the customer going to the restaurants having their meals. It may take a longer time to place the orders and sometimes the orders will be placed incorrectly by processing the orders manually also one of the food ordering issues. Besides, it is hard for admin to update the latest food menu, record the food sales and customer orders in paper based are the restaurant management issues. Moreover, human beings are not very good at predicting the future. The poor

prediction on food preparation by human had caused the food shortage and food waste issues. The customers do not always get the selection they want because of the food shortage issue. This issue might make the restaurants lost a lot of customers as they are unsatisfied with the restaurants. In addition, the restaurants leftover food due to the excess quantity of food preparation will be throw is one of the food waste issues.

1.3 Objective

The objectives of developing an intelligent food ordering management system are identified based on the problem statement stated above. The objectives are listed as below:

- i. **To develop an online system to improve the availability of food order service.**

This system can make the food ordering process more efficient and easy for both customers and restaurants. It is able to solve the food order issues.

- ii. **To provide a platform that allows efficient management of the restaurants.**

This system allows administrator to update the food menu of the restaurants and manage the customer orders in an efficient way. It can help to solve the restaurant management issues.

- iii. **To design and implement an intelligent algorithm to predict the quantity of food preparation.**

This system can predict the quantity of the food preparation based on the food sales data by using clustering technique. It will give some the advices to restaurants based on the prediction results. This can help to solve the problem of poor prediction on food preparation by human, food shortage and food waste issue. The clustering technique will be implemented into the system and evaluated after the implementation.

1.4 Scope

The scopes of this project can be divided into two part which are module to be developed and target user.

1.4.1 Module to be Developed

There are eight type of module to be developed for intelligent food ordering management system which are admin module, food menu module, report module, analysis module, order module, user module, forgot password module and change password module.

a. Admin module (Admin only)

- View all user order details
- Manage all the user orders
- Print the all orders receipt
- View and search user details

b. Food menu module (Admin only)

- Add new food to system
- Update food from system
- Delete food from system
- View food menu details

c. Report module (Admin only)

- Generate daily sales report by analysis the sales data

d. Analysis module (Admin only)

- Analysis the food sales data by system
- View the predict quantity for food preparation
- View recommended message generate by system based on the prediction result

e. Order module (User only)

- View the food menu
- Add new order to system
- View own orders history
- Print the own orders receipt

f. User module (User only)

- Add new user information to system
- Update user own information from system
- View own order details

g. Forgot password module (User only)

- Login to system by answering the security question

h. Change password module (Admin and user)

- Change password for self

1.4.2 Target User

There are two type of end users for intelligent food ordering management system which is admin and user.

a. Admin - Administrator who manage the entire system

- View the list of the food menu
- Manage and update the food menu
- View and search all user personal information
- View all user order details
- Manage all the user orders
- View daily sales reports
- View the predict quantity for food preparation
- View the recommend messages
- Change admin own password

b. User - Customer who using the system to order food

- Add new user information by registration
- Update user own personal information
- View the food menu and own order details
- Add new orders
- Print the orders receipt
- Change user own password

1.5 Project Significance

There are many benefits from the intelligent food ordering management system. This system will be going to help the customer and administrator in the restaurant. This system will change form manual system to computerized system. It provides a user-friendly interface for both admin and customers to manage the restaurant and orders respectively. Besides, this system is secure and full of functionality, it can ensure all data stored safely in the database. The project significances of this system are listed as below:

- Enable to manage the restaurant and food order in an efficient way
- Intelligent prediction of daily food quantity preparation by using clustering approach
- Provide advice on food menu management for the restaurants
- Enable to solve the issues of food waste and food shortage in restaurant
- Enable to generate daily sales report for the restaurant

1.6 Expected Output

The project is expected to be able to develop an intelligent food ordering management system that can allow the customer to place orders and admin can

manage the food as well. The customer can place their orders quickly and easily by a few clicks. The customer also can manage their own account details and view their orders history. For admin, they can update the food menu, manage their customer orders and view the sales report which generates by the system based on the analysis results of the food sales data as well. Besides, the system is expected to be able to solve the restaurant food shortage and food wasted issues by improving the poor prediction on food preparing quantity by admin. The system is expected to be user-friendly and full of functionality with embedded some artificial intelligence techniques. In addition, the outcome of this project should prove that by applying clustering techniques into the system helps to solve the main problem faced by the restaurants such as food shortage and food waste issues.

1.7 Conclusion

In a nutshell, the chapter one has introduced the basic idea of the project. Having a good management is important for a restaurant to run smoothly and successfully. Hopefully this online food ordering management system will work well to help the admin to manage their restaurants and give convenience for customers to have their meal in time easily. Besides that, the system is developed by using PHP scripting language and MYSQL database. Additionally, the clustering approach is used to develop the system. Hence, the system will be more intelligent to solve the problem of poor prediction by human. The dataset used for analysis by clustering technique is taken from the food order details in the MYSQL database.